

REMARKS

Status of the Claims

Claims 2, 6-8, 12-14 and 22-24 are currently pending in the present application. Claims 2, 7, 8, and 12 have been amended herein. Claims 3, 5, 9, 11 and 19-21 have been cancelled in the present response. New claims 22-24 have been added, which correspond to previously cancelled claims 19-21. No new matter has been added by way of the present claim amendments.

Claim Objections

Claims 2, 3, 5, 6 and 19-21 stand objected to. In response, Applicants have amended claim 2 in accordance with the Examiner's suggestion. Accordingly, Applicants request withdrawal of the outstanding claim objections.

Claim Rejection - 35 USC § 102

Claims 8 and 9 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,521,694 to Belt et al. (hereinafter "Belt").

The Examiner has taken the position that Belt anticipates claims 8 and 9, because Belt teaches a latex of a hydrogenated natural rubber and a degree of hydrogenation of at least 60%.

Claim 8 presently recites "said rubber-like polymer is a polymer which is the reaction product of a natural polyisoprenoid with hydrogen in the presence of a hydrogenation catalyst in a solvent" and "said rubber-like polymer has a weight-average molecular weight of 20×10^4 or more and a molecular-weight distribution of 2.0 or more". Moreover, claim 9 has been cancelled.

Applicants respectfully submit that presently amended claim 8 is not taught or suggested by Belt.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Since Belt does not teach each and every element of claim 8, Belt cannot properly anticipate the present invention, within the meaning of 35 U.S.C. §102(b). Accordingly, Applicants respectfully request reconsideration and withdrawal of the outstanding rejection.

Claim Rejections - 35 USC § 103

Claims 2 and 3 stand rejected under 35 U.S.C. § 103 as being unpatentable over Belt in view of U.S. Patent No. 2,410,661 to Huppke (hereinafter “Huppke”).

Claim 5 stands rejected under 35 U.S.C. § 103 as being unpatentable over Belt in view of Huppke, as applied to claim 2 above, and further in view of U.S. Publication No. 2003/0125475 to Sasagawa et al. (hereinafter “Sasagawa”).

Claim 6 stands rejected under 35 U.S.C. § 103 as being unpatentable over Belt in view of Huppke, as applied to claim 2 above, and further in view of U.S. Patent No. 4,963,623 to Miller et al. (hereinafter “Miller”).

Claim 7 stands rejected under 35 U.S.C. § 103 as being unpatentable over Sasagawa in view of Belt as evidenced by Miller.

Claim 11 stands rejected under 35 U.S.C. § 103 as being unpatentable over Belt, as applied to claim 8 above, and further in view of Sasagawa.

Claims 12-14 stands rejected under 35 U.S.C. § 103 as being unpatentable over Sasagawa in view of Belt as evidenced by Miller.

Claims 19 and 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Belt in view of Huppke.

Claim 21 stands rejected under 35 U.S.C. § 103 as being unpatentable over Belt in view of Huppke, as applied to claim 19 above, and further in view of Miller.

Claim 2 and claims dependent thereon

The present invention relates to rubber-like elastic article comprising a hydrogenated natural polyisoprenoid and production methods thereof. The hydrogenated natural polyisoprenoids have a modified structure as a result of hydrogenation of natural polyisoprenoids so as to have higher degrees of saturation.

Presently amended claim 2 recites:

A rubber-like or rubber-like-material-containing elastic article, wherein the article is a molded/formed product of a rubber-like composition comprising a hydrogenated natural polyisoprenoid having a degree of hydrogenation of 50% or more or a modified product thereof, wherein the molding/forming is accompanied by crosslinking,

wherein said hydrogenated natural polyisoprenoid is a polymer which is the reaction product of a natural polyisoprenoid with hydrogen in the presence of a hydrogenation catalyst in a solvent, and

wherein said hydrogenated natural polyisoprenoid has a weight-average molecular weight of 20×10^4 or more and a molecular-weight distribution of 2.0 or more.

In the outstanding Office Action, the Examiner has taken the position that claim 2 is rendered obvious by the combination of Belt in view of Huppke, since Belt teaches a latex hydrogenated natural rubber and a degree of hydrogenation of at least 60% and Huppke teaches that a hydrogenated natural rubber can be vulcanized/crosslinked after hydrogenation to form an article.

However, Applicants respectfully submit that the outstanding rejections appear to be due to Examiner's misunderstanding of the Belt disclosure. In fact, Belt does not disclose the same rubber-like article as the article of the present invention. Furthermore, Applicants respectfully submit that the Examiner has mistakenly asserted that Belt and Huppke can be combined to arrive at the present invention.

Belt is directed to a process for hydrogenating carbon-carbon double bonds of an unsaturated polymer by adding to the unsaturated polymer (1) a reducing agent selected from the group comprising hydrazines and hydrazine-releasing compounds, (2) an oxidizing compound, and (3) a catalyst (column 1, lines 11-16). The process is quite different from the process of the present invention. The process of Belt cannot produce "the rubber-like or rubber-like-material-containing elastic article" as recited in the present invention.

Indeed, Belt describes natural rubber as specific examples of suitable unsaturated polymers. *See* column 2, lines 16-17. However, the Examiner's assertion that the rubber product of the present invention is disclosed in Belt based on the above description is erroneous,

as a lot of other kinds of polymers (i.e., polybutadiene and polyisoprene) are described in the noted portion of this reference. Thus, there is no motivation to select “natural rubber” from amongst the listing of polymers. That is, “natural rubber” is just one of the examples in disclosure, without particular emphasis or relevance, therefore, such a description cannot provide sufficient suggestion to perform the present invention. Rather, since the description in Belt describes a lot of synthetic rubber products, one of ordinary skill in the art would most likely be led towards a synthetic rubber product, instead of a natural rubber product.

Assuming, *arguendo*, that one of skill in the art selected a natural rubber from among the listing in Belt, and combined it with the processing method disclosed by Huppke, Applicants respectfully submit that it would still be impossible to arrive at a rubber-like or rubber-like-material-containing elastic article as recited in presently amended claim 2. Applicants respectfully submit that the selection of a natural rubber would not have yielded a predictable result. In order to confirm the effects of selecting a natural rubber, the skilled artisan would incur great expense of time and money. Accordingly, even if there is a mere description in the art, the skilled artisan would not arrive at the present invention because excessive experimentation would be needed to confirm an unpredictable result.

Furthermore, Belt describes that a drawback of the prior art is that polymers that are crosslinked early in the hydrogenation process leave behind heavy metals after they are worked up. *See* column 1, lines 27-30. Thus, the object of Belt is quite different or a teaching away from that of the present invention, because the goal of Belt is to address the noted drawback. In this regard, the description of Belt cannot provide sufficient motivation to arrive the present invention, since “crosslinking” is recognized as an undesirable drawback. This is quite opposite of the present invention, which includes crosslinking.

In the Advisory Action dated February 24, 2009, the Examiner stated that “While Belt et al. does teach away from crosslinking the polymer during the hydrogenation process, there is nothing in the patent to teach away from post-crosslinking the hydrogenated rubber.” Applicants respectfully disagree.

Applicants acknowledge that Belt prohibits crosslinking in the first stage of the hydrogenation process. Moreover, Belt does not consider the necessity of the crosslinking of polymer at any later stage post-hydrogenation. Thus, there is no requisite motivation to combine Belt with Huppke to arrive at the presently claimed invention. The processes described in Belt and Huppke are distinct (i.e., a hydrogenation process and the crosslinking process). These processes are clearly different from those of the present invention.

The Examiner has relied upon Sasagawa to cure the deficiency of Belt and Huppke regarding molecular weight and molecular weight distribution. However, the polymer described in Sasagawa is a hydrogenated conjugated diene polymer. The polymer is obtained by, for example, anionic living polymerization ([0021]-[0023]). Therefore, Sasagawa does not disclose a natural polyisoprenoid.

When an isoprenoid is not natural, it is known that the exclusion of a vinyl group occurring on the side chain of the isoprenoid is impossible. Thus, even if the disclosure of Sasagawa is considered, neither molecular weight nor the molecular weight distribution of the natural polyisoprenoid is suggested because the chemical structure is different. Therefore, based on the above, a person ordinary skill in the art would not be able to arrive at the invention recited in present claim 2, wherein the molecular weight and the molecular weight distribution of the natural polyisoprenoid are included as structural requirements.

Moreover, Applicants respectfully submit that Belt and Sasagawa are non-analogous art. As noted above, Sasagawa does not disclose a natural polyisoprenoid. Since the chemical structures of the present invention and that of Sasagawa are quite different, it would have been impossible for one of ordinary skill in the art at the time of the present invention to predict or suggest the molecular weight or the molecular weight distribution of the natural polyisoprenoid based on Sasagawa's description. Therefore, those of ordinary skill in the art would not have arrived at the presently claimed invention based on the disclosures of the cited prior art.

Accordingly, Applicants respectfully submit that Belt, Huppke, and Sasagawa, independently or taken together, do not teach or suggest the limitations of present claim 2. Applicants respectfully request reconsideration and withdrawal of the outstanding rejections.

